

Future-ready Digital SCM for EPC industry

Supply chain (Procurement) is a central of EPC and contributes towards a 50-60% of project cost. Digitalisation has transformed many industries however due to inherent issues related to the EPC industry and intricate supply chain, the design and implementation of digital solutions becomes far more complex and needs to be addressed carefully. Author discussed the three pronged approach to improve SCM through digitalization.

India is one of the world's fastest-growing economies. The growth needs to be well supported by building new infrastructure and industry. Most of these facilities are built through Turnkey contracts on Engineering, Procurement, and Construction (EPC) Basis. The EPC contractors carry out the detailed engineering/design of the project, procure of materials and services required, and finally construct project facilities.

EPC Industry, or any business for that matter, has three key imperatives which drive the success of a project. Ensuring one of the facets may adversely affect the other. Managing these effectively is crucial for success in EPC industry (Fig. 1).

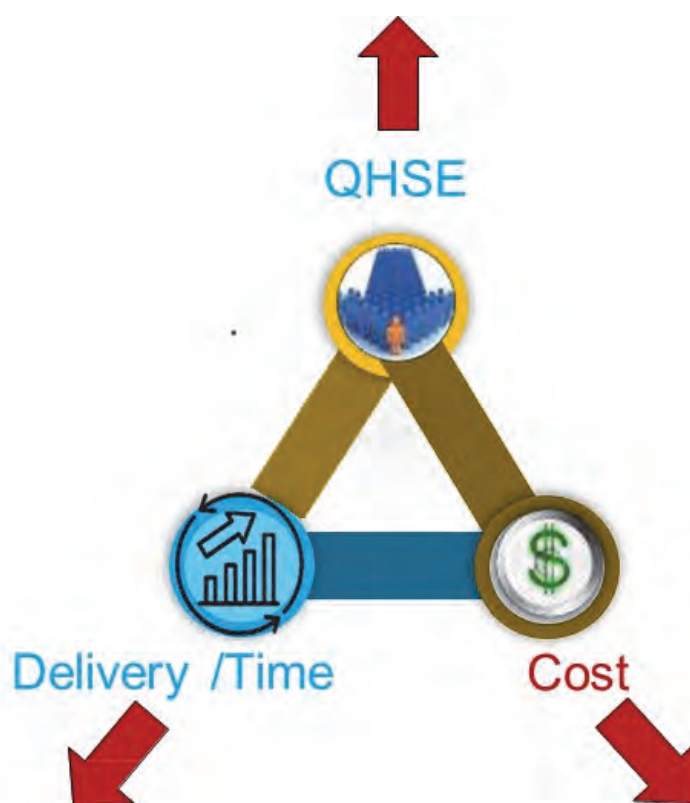


Fig. 1: Imperatives to drive success of project

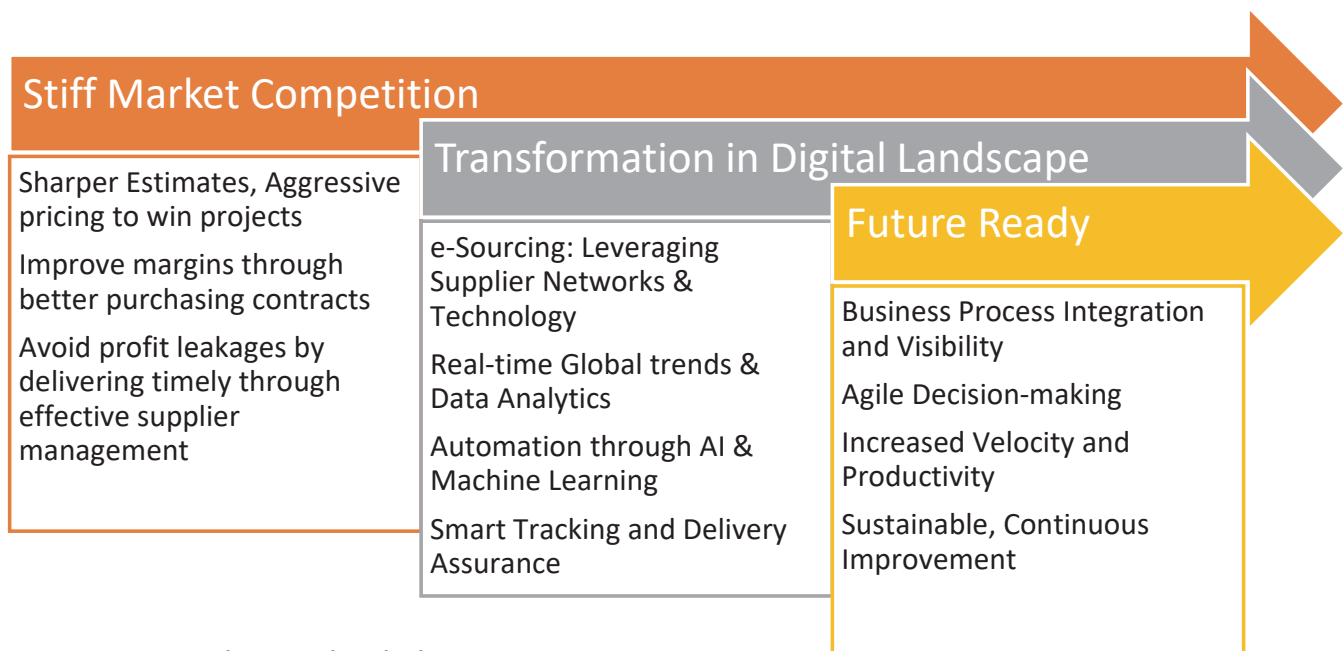


Fig.2: Future Ready Supply Chain

The Time Dimension

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Delivering projects on time is most crucial priority, as delays can put significant pressure on the budget in terms of additional manhours and liquidated damages. This in turn may hurt QHSE performance.

The need to compress the timelines, to meet the demanding customer schedules, results in concurrent Engineering, Procurement, and Construction. To avoid delay in Order finalisation, due to evolving detailed engineering and firming up of specifications/quantities, various assumptions are made for expedited procurement. However, all assumptions do not hold during the process, necessitating change management. Further, as goods are manufactured to specification

(engineered goods), they are not available off-the-shelf (longer procurement cycle times). This elevates the need for error-free manufacturing (first-time right design).

Over and above, crash procurement requirements may emerge due to late availability of design details and customer inputs or last moment changes in design. This results in tweaking of Procurement Process to meet shortened timelines. These cases may be less in value but drive project critical path.

Digital Conundrum in EPC Supply Chain

Digitalisation has transformed many industries such as finance, telecom, and retail and making impact every industry. COVID Pandemic has accelerated the

necessity of digitalisation with better implementation of virtual workplaces. However, due to inherent issues related to the EPC industry and intricate supply chain, the design and implementation of digital solutions becomes far more complex and needs to be addressed carefully.

The key in digitalising systems is repeatability and a large variance in processes makes it difficult. Due to large no. of inputs, revisions and significant variation in processes, the volume of data is not sufficient for sharp benchmarking and detailed analytics. Variations are induced due to ordering quantity changes, differing schedules, testing requirements, client specific nuances, geographical changes etc. Managing continuous design evolution/ changes is a must for successful execution.

Supply chain (Procurement) is a central of EPC and contributes towards a 50-60% of project cost. Thus, creating a future ready supply chain through process improvements and digitalisation is crucial to maintain competitiveness in EPC Sector (Fig. 2).

SCM Digitalisation Approach

Traditional procurement systems in EPC have relied upon the document exchanges during sourcing process and tracking of

the offers and ordering cycle. However, the focus is now shifting on not just tracking the ordering cycle but on the overall efficacy of the ordering process and price discovery. Digitalisation can improve SCM performance through three-pronged approach on improving cost performance (Cheaper), Quality (Better), and Speed (Faster)

As EPC contractors need to buy materials and services from worldwide suppliers, they need a system which is standardised and accepted. It is recommended that cloud-based Supply chain network platform is used for the same, where suppliers register themselves. The platform should be able to integrate with existing ERP systems of individual players (Customers as well suppliers). In effect this is a social media platform for Supply Chain community, an ecosystem for buyers as well as suppliers.

Parts of Procurement Function

- **Supplier management:** This is relatively standard process across industries. However, it is important to categorise suppliers and apply different rigour for each group. Also, it is important to identify level of rigour at each stage viz. Registration, Qualification, and Performance evaluation. While registration details



are brief and generic across groups, Qualification and Performance can be group specific and detailed.

- **Source to Contract:** Standard solutions are available to cover most processes in this function. Some major tweaks are still required to be done to address technical query cycles and managing changes in specifications/quantity. Especially in Hydrocarbon EPC industry, end-customers define the approved vendor list, it is difficult for EPC contractor to enforce its own vendor list based on experience. Customers tend to have different specifications and testing requirements for similar items and insist these materials to be bought from specific suppliers.
- **Contract to Supply:** Most EPC players rely on in-house systems, starting with

basic excel sheet templates to high-end Document management systems and workflows to cater to this part. No. of dimensions includes engineering drawings and integration of vendor inputs in overall design, Progress of sub-orders such as raw material procurement, Quality inspection standards, Logistic movement etc.

- **Supply to payment:** This is relatively standard process across industries and many digital solutions are available for managing this process. Analytics helps to drive efficiency and monitor the implementation and value realisation and this dimension is crucial while designing systems and templates.

Journey of SCM Digitalisation

The digitalisation journey is not simple and

needs to be carefully planned with a full-time core project team and strong support in the form of executive sponsorship at the highest level in the organisation. It is important to visualise what success means to all participants and ensuring that the definition of success is synchronised and not conflicting across functions. Look at SESA approach for process mapping. (Simplify, Eliminate, Standardise, Automate). Monitor intermediate milestones with relentless focus on value delivery.

Digital systems open a new paradigm through transparency and ready availability of reports in real-time thus improving overall project execution. However, process harmonisation is key at macro as well as micro-level before any implementation is taken up. The system driven approach to manage process variations is required and needs significant understanding of IT as well as business processes. Working team requires to capture information in digital format and there are always disputes on who will be responsible for the task. While efforts are always done to capture data at source using workflows, there are always missing pieces. The teams may continue to capture data in excel sheets and convincing them to use online systems is always tricky.

Driving adoption is another dimension where significant work is required. Shifting

from manual to system is easier, however in case you have existing system, the shift becomes far more challenging due to continuous comparison of old with new system. This is where drive from executive sponsorship is crucial.

Journey at L&T Hydrocarbon

LTHE has, as always, set steep growth targets as part of the perspective plan. The plan envisages significant scale up in business, without proportionate addition of resources. To achieve the business at that scale and achieve higher productivity, it is important to improve operational efficiency. Digitalisation of internal processes in EPC context is the key to maintaining this cutting edge.

L&T hydrocarbon took this journey for digitalisation of supply chain in two parts viz. SAP Ariba implementation (Project Shikhar 3.0) and consolidation of existing post order tracking systems. Ariba implementation is an example of using standard platform with limited customisation. The implementation scope included six modules viz. Supplier Lifecycle and Performance (SLP), Sourcing, Contract Lifecycle Management (CLM), Supplier Risk management (SRM), Supply Chain Collaboration (SCC) and Spend Analysis. The task force was guided by program manager and driven ported by Executive sponsor. The core

team included a full-time project manager and representative from SCM for each business unit. The team was guided by Steering committee comprising of all SCM heads. L&T Infotech was chosen as implementation partner.

The second part of digitalisation was about consolidation of existing post order systems using highly customisable, Microsoft SharePoint Server (MOSS) platform. As standard software products are not available for managing post order activities for non-standard environment, LTHE had built various systems to address specific sub-processes in Contract to Supply segment. These included VDRS (Vendor Document Register System – for vendor engineered documents), VDM (Vendor Delivery Management – for monitoring progress of vendor sub-ordering and manufacturing), Quest / ICMS (for monitoring quality inspection calls, inspection release notes) and ILTP (Integrated Logistics Tracking Portal). As part of integration, single interface was created to ensure that all users including supplier have seamless experience across different sub-processes. System architecture was also tweaked to allow limited flexibility to buyers to manage variations across categories / projects while maintaining core process. This system is smoothly dove-tailed with the SAP Ariba system.

Conclusion

Typically, digitalisation happens in significant spurts at intervals with incremental developments in-between. These quantum jumps need to be managed well for proper design as well as adoption. It is important to identify whether you wish to go with standard platform with limited customisation or completely customised platform. While in short-term, customised platforms offer better fit and easier user acceptance and also may be quick to implement. However, it is important that the evaluation is done keeping in mind the long-term business volumes, assured technology upgrades and updates for changes in legal and taxation frameworks. As saying goes “You can’t do today’s job with yesterday’s methods and be in business tomorrow”, It is important to update the methods, refine them using SESA principles and implement with wider adoption. ■

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